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Research Article

Challenges of Small-Scale Snail Farmers in Oji-River Local Government Area, Enugu State, Nigeria

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ABSTRACT

The study identified the challenges faced by small-scale snail farmers in Oji-River Local Government Area Enugu state, Nigeria. Interview schedule was developed and used to collect data from 72 respondents. The findings revealed that majority (59.7%) of the respondents were married women who were fairly educated with average age of 56years with household size of6 members and farming experience of 7years. Majority (50%) had stock size above 400 snails with 43.1% earning between ₦30,000-₦40,000 annually from sale of snails. About 72.2% of the respondents used intensive management system. The major challenges faced by small-scale snail farmers in the area were; lack of funds ($\bar{x}$= 3.2), lack of feeds ($\bar{x}$= 3.1), diseases/parasites infection ($\bar{x}$= 3.5), lack of land ($\bar{x}$= 3.0), lack of veterinary services ($\bar{x}$= 3.6), problem of poachers ($\bar{x}$= 3.8), cultural restrictions ($\bar{x}$= 3.4) religious restriction ($\bar{x}$= 3.2) and lack of contact with extension agents ($\bar{x}$= 3.0). The recommendations are that more trainings on snail production should be given to the farmers and effective linkage between the farmers and extension services of Agricultural Development Programme established. In conclusion snail farming is still facing a lot of challenges in Nigeria.

Key words: Snail, Small-scale Farmers, Enugu State, Nigeria

INTRODUCTION

Snail farming is called heliciculture. Snail farming is not very popular in Africa and Nigeria in particular. In Nigeria, snail farming has started to gather momentum in the recent years probably due to the awareness of its nutritional, therapeutic, cosmetic and industrial properties created by the extension agencies.

International trade on snails are flourishing in Europe and North America. However, in spite of the considerable foreign and local demands, commercial snail farms such as those in Europe, South-East Asia and the America hardly exist in Africa.

The scientific name of snail is *Achatina species*. There are about three species namely; *Achatina achatina* (the big red/tiger snail) brown with black strips with average weight 350gm and size 8cm×14cm; *Achatina fulica* (the foolish one/ the garden snail), light brown with grey stripes weighing 85gm and size 4.5cm×8cm and *Archachatina marginata* (the big black) brown with grey stripes weighing 250gm and size 7cm×13cm (Cobbinah 2015). Snail belongs to Molluscs and the family *Achatinidae* with 14 genera namely; *Achatina, Archachatina, Atopochochlis, Bequeartina, Burtoa, columma, callistpepla, lignus, limicollaria, limicolariopsis, lissachatina, metachatina, periderriopsis and pseudachati* (Ezeano, 2015). Snail is wide spread in West African Countries like Nigeria, Cameroon, Benin, Togo, Niger, Ghana, Côte d'ivoire, Mali, Liberia, Guinea, Sierra Leone, Ginea Bissau, The Gambia, Senegal and Mauritania.

Snail meat has traditionally been major ingredients in the diet of communities in the forested areas of Africa. Snails meat is consumed by humans worldwide since prehistoric times. It is high in protein (12-16%) and iron (45-50mg/kg), low in fat and contains almost all the amino acids needed by humans. In Côte d'ivoire, an estimated 7.9million kg are eaten annually. According to National Bureau of statistics (2007), the consumption of snail protein by state in Nigeria is ₦28,859.00 annually. The glandular substances in edible snail meat cause agglutination of certain bacteria, which could be of value in fighting a variety of ailments, including whooping cough. Snail secretion is used for treatment of cough, skin diseases, acne, bronchitis, catarrh, asthma, tonsilitis, sore throat, measles, small pox, scarlet, anemia, and bacteria. Lectin extracted from snails is used as a prognastic indicator for some cancers-breast, stomach and

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colon. Snail secretion and extract contain allantoin, collagen, elastin, glycolic acid, hyaluronic acid, vitamin E and protein that are natural activators for ageing and damaged skin (Cobbinah, 2015).

In Nigeria today, it is clear that the demand for snail meat quite outstrips supply, thus the high cost of snail in the market. According to Obioha (1992) in Ezeano (2010), the level of consumption of meat and animal protein in Nigeria is estimated at about 8g per caput per day which is 20g less than the minimum requirement by the National Research Council of United States of America.

In order to ensure adequate supply of protein to the rapidly growing population of Nigeria, the output of animal products has to be increased especially by short cycle animal like snail. It has been observed that snail is one of the least populated livestock animal kept in the country when compared with other livestock animals. This poor population figure must be as a result of numerous challenges, which hinder its production or farming to augment the protein intake in our diets.

The study was therefore designed to find out in details the major challenges to the farmers of snail by small-scale farmers in Oji River Local Government Area of Enugu State. Specifically, the study was designed to:

1. ascertain the socio-economic status of snail farmers in Oji River local government area of the state.
2. examine the snail management systems practiced by these farmers and
3. determine the challenges militating against snail farming in the study area.

MATERIALS AND METHODS

The study was carried out in Oji River Local Government Area of Enugu State, Nigeria which is made up of four major towns-Achi, Inyi, Ugwuoba and Awlaw. Oji River is located between latitude $6^0 15^I$Nand longitude$7^0 20^I$E(Microsoft Encarta, 2008). All the four towns were purposively selected for proper coverage.

In each of the towns, eighteen (18) snail farmers were randomly selected and interviewed to give a total number of seventy-two (72) snail farmers. A structured interview schedule was developed and used to obtain relevant information from the respondents. Data collected were analyzed using percentages and mean scores.

RESULTS AND DISCUSSION

Socio-economic characteristics of snail farmers

The study showed that majority (59.7%) of the respondents were females while 40.3% were males. This is because snail farming and harvesting is regarded as a feminine and children activity in the study area especially in Achi and Inyi. The average age of the respondents was 56 years and majority (70.8%) were married. Only 1.4% of the respondents had no formal education. The average years of snail farming experience was 7 years and the average household size was 6 members with 43.1% making an annual income of ₦30,001-₦40,000 from snail farming. Majority (50%) had a stock size of above 400 snails and belonged to at least one social organization. The implication of this finding points a bright future for snail enterprise in the area. The respondents were in their mid-years and fairly educated and experienced in snail farming. The family size can supply enough labour for the enterprise. The income derived from snail farming is fair and the stock size is promising. The membership of social organizations serve as forum through which farmers exchange ideas and learn about new farm practices (Ezeano, 2010). The high educational level of the farmers is a great advantage to adoption of approved farm practices (Madukwe, 1995 and Ezeano, 2010).

Entries in Table 2 showed that majority (72.2%) of the snail farmers were engaged in intensive management systems while 20% and 7.8% used extensive and semi-intensive management systems respectively. The reason for massive use of intensive system may be to the fact that snails are adapt at escaping from enclosures and may quickly develop into a serious agricultural pest especially horticulture. Another reason may be to protect them from predators like rats, birds, beetles, snakes, millipedes, mice, lizards and other wild animals. The intensive system also helps to prevent poachers, diseases and parasites. On the whole, the implication of this finding is that snail farmers must have enough financial backing as well as know the disease/pest control measures which are key indicators of successful production.

Challenges of snail farming in the area

Table 3 revealed that the major challenges of snail farming were lack of funds ($\bar{x}$=3.2), lack of feeds ($\bar{x}$=3.1), diseases/ parasite infection ($\bar{x}$=3.5), lack of lands ($\bar{x}$=3.0), lack of veterinary services ($\bar{x}$=3.6), problem of poachers ($\bar{x}$=3.8), cultural restrictions ($\bar{x}$=3.4), religious restrictions ($\bar{x}$=3.2) and lack of contact with extension agents ($\bar{x}$=3.0). Other challenges not considered as major include; labour problem ($\bar{x}$=2.5), problem of predators ($\bar{x}$=2.4) and poor market demands (x=2.5)

Lack of fund was a major challenge faced by snail farmers in the study area. This supports the findings of Emokaro and Emokpae (2013) and Chukwuji, Inoni, Ogisi and Oyaide (2006) which demonstrated that poor capital base of farmers among other challenges is the major constraint to large scale production by the farmers. Lack of feeds, diseases/ parasite infection, lack of veterinary services and lack of contact with extension agents were major challenges faced by snail farmers in the study area. These findings agreed with Ezeano (2013) and Cobbinah (2015) who discovered that feeds and feeding, diseases/parasite like fly; *Allaudihella flavicornis, Pseudomonas spp, Fusarium spp,* lack of veterinary services and lack of access to extension agents who are knowledgeable in mini-livestock production were major constraints to adoption of improved livestock technologies like rabbits and snails. Poachers, cultural and religious restrictions were also major challenges in the rearing of snail in the study area. This is in agreement with Ezeano (2015) who asserted that snail meat is a delicacy to some, whereas others will not even touch nor eat it for religious or cultural reasons. Ezeano (2015) also observed that poachers often break into the snail pens and made away with the snails because they feel that snails are wild and cannot be domesticated. Lack of land is another challenge to snail farming in the study area. This agreed with the apriori expectation that women do not own land and since women formed majority in snail farming in the study area, land is bound to be a major challenge in snail farming.

Table 1: Percentage distribution of respondents according to their socio-economic characteristics

Socio-economic characteristics	Percentage %	Mean $\bar{x}$
Gender		
Male	40.3	
Female	59.7	
Age		
Below 40 years	23.7	
40-49	33.5	
50-59	30.7	56
60-69	9.8	
70-79	2.8	
Marital status		
Single	9.6	
Married	70.8	
Widowed	16.7	
Divorced	5.6	
Educational level		
No formal education	1.4	
Primary	12.5	
Secondary	33.3	
OND/HND/Degree	52.8	
Years of snail farming		
1-5	51.7	
6-10	33.3	7.1
11-15	15.0	
Household size		
1-4	18.1	
5-9	76.4	6.0
10-14	5.6	
Membership of social organizations		
Non	30.0	
1-2	53.3	1.0
3-4	16.7	
Annual income from snail		
<₦10,000.00	1.4	
₦10,000-₦20,000	6.9	
₦20,001-₦30,000	40.3	
₦30,001-₦40,000	43.1	
Above ₦40,000	8.3	
Stock size		
<100	5.0	
100-200	6.7	
201-300	8.3	
301-400	30.0	
Above 400	50.0	

Table 2: Management Systems in the Area

Management systems	%
Intensive (hutch boxes, trench pens, car tires, drums)	72.2
Plastic tunnel houses, greenhouses, closed systems	
Semi-intensive or mixed	7.8
Extensive (free-range pens, mini-paddock pens)	20.0

Table 3: Mean distribution of challenges of snail farming

Challenges of snail farming	Mean $\bar{x}$
Lack of funds	3.2**
Labour problems	2.5
Lack of feeds	3.1**
Diseases/parasite infection	3.5**
Housing	2.4
Lack of land	3.0**
Lack of veterinary services	3.6**
Problem of poachers	3.8**
Problem of predators	2.4
Poor market demands	2.5
Cultural restrictions	3.4**
Religious restriction	3.2**
Lack of contact with extension agents	3.0**

Any $\bar{x} \geq 3.0$ = significant**; Any $\bar{x} < 3.0$ = insignificant; Cut-off $\bar{x} = 3.0$

Recommendations

As a result of the major findings in this study, the following recommendations were made as a solution to the challenges encountered by the snail farmers in the study area. Banks should be advised to relax some of the stringent measures in obtaining loans by small-scale farmers. The veterinary services of Ministry of Agriculture should be energized to live up to their expectations in control of diseases and pests of animals especially mini-livestock. Also an effective linkage between the farmers and extension services of the agricultural development programme of the state is advocated. The extension agency need to organize workshops, seminars and trainings on improved snail technologies for the farmers. This will help to improve the farmers' skill, knowledge, attitude and techniques in snail production which will result in higher production, protein intake, income and improved standard of living.

Conclusion

Based on the findings of this study the following conclusions were made: women formed the bulk of snail farming in the area. The farmers were relatively young and fairly educated.

The major management system of snail farmers was intensive system. The major challenges faced by the snail farmers were; lack of funds, lack of feeds, diseases/parasite infections, lack of lands, lack of veterinary services, problem of poachers, cultural restrictions, religious restrictions and lack of contact with extension agents.

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